

## CLAIMS

1. A vacuum pressure regulating valve comprising:
  - a first main port and a second main port respectively connected to one of
  - 5 a vacuum pump and a vacuum chamber and the other;
  - an annular valve seat formed in a connecting path connecting both the main ports;
  - a circular flow path wall coaxially surrounding the valve seat and having a diameter greater than a seat diameter of the valve seat;
  - 10 a disc-shaped valve member which has a front face mounted with a first sealing member for opening and closing the valve seat and a circular outer peripheral wall having a diameter smaller than that of the flow path wall and greater than the seat diameter and which is fitted in the flow path wall to thereby form a restricted flow path between the flow path wall and the outer
  - 15 peripheral wall; and
  - a driving portion for causing the valve member to carry out opening and closing operations.
2. A pressure regulating valve according to claim 1, wherein the valve member
- 20 does not have a projecting portion or member which is fitted in the valve seat to affect change in a flow path area on the front face of the valve member.
3. A pressure regulating valve according to claim 1, wherein at least one of the outer peripheral wall of the valve member and the flow path wall is tapered.
- 25 4. A pressure regulating valve according to claim 1, wherein a height of the flow path wall and a height of the outer peripheral wall of the valve member

approximate to each other.

5. A pressure regulating valve according to claim 1, wherein a plurality of notches for regulating the flow path area of the restricted flow path are provided to one of the outer peripheral wall of the valve member and the flow path wall.

6. A pressure regulating valve according to claim 2, wherein a plurality of notches for regulating the flow path area of the restricted flow path are provided to one of the outer peripheral wall of the valve member and the flow path wall.

7. A pressure regulating valve according to claim 3, wherein a plurality of notches for regulating the flow path area of the restricted flow path are provided to one of the outer peripheral wall of the valve member and the flow path wall.

8. A pressure regulating valve according to claim 5, wherein one of the outer peripheral wall of the valve member and the flow path wall not provided with the notches is provided with a second sealing member for coming in contact with the other wall provided with the notches to thereby control the flow path area of the restricted flow path together with the notches.

9. A pressure regulating valve according to claim 6, wherein one of the outer peripheral wall of the valve member and the flow path wall not provided with the notches is provided with a second sealing member for coming in contact with the other wall provided with the notches to thereby control the flow path area of the restricted flow path together with the notches.

10. A pressure regulating valve according to claim 7, wherein one of the outer

peripheral wall of the valve member and the flow path wall not provided with the notches is provided with a second sealing member for coming in contact with the other wall provided with the notches to thereby control the flow path area of the restricted flow path together with the notches.

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11. A pressure regulating valve according to claim 5, wherein the notches are grooves provided to the flow path wall or the outer peripheral wall in a height direction of the wall.

10 12. A pressure regulating valve according to claim 6, wherein the notches are grooves provided to the flow path wall or the outer peripheral wall in a height direction of the wall.

15 13. A pressure regulating valve according to claim 7, wherein the notches are grooves provided to the flow path wall or the outer peripheral wall in a height direction of the wall.

20 14. A pressure regulating valve according to claim 5, wherein the flow path wall is formed of a cylindrical member provided around the valve seat and the notches are formed of holes formed in the cylindrical member.

25 15. A pressure regulating valve according to claim 6, wherein the flow path wall is formed of a cylindrical member provided around the valve seat and the notches are formed of holes formed in the cylindrical member.

16. A pressure regulating valve according to claim 7, wherein the flow path wall is formed of a cylindrical member provided around the valve seat and the notches

are formed of holes formed in the cylindrical member.

17. A pressure regulating valve according to claim 1, wherein the flow path wall  
is formed of a cylindrical member mounted around the valve seat, the valve  
5 member has a circular outer ring portion surrounding the outer peripheral wall  
with a constant space between the outer peripheral wall and the outer ring  
portion, and the flow path wall is fitted between the outer peripheral wall and  
the outer ring portion when the valve member approaches the valve seat to  
thereby form the bent restricted flow path between the outer peripheral wall, the  
10 outer ring portion, and the flow path wall.